

Chapman University

Sustainability Solutions

Gordian FY19 REPORT

SUSTAINABILITY SOLUTIONS



Sustainability Peer Institutions

| The Thacher School | St Mary's College of California | University of Denver |
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| California Institute of the Arts | University of San Francisco University of San Diego | University of Texas – Rio Grande Valley |

Key Takeaways

Since FY14/15, Chapman University has increased total emissions on campus by 7%. This increase has primarily been due to an increase in Scope 3 emissions, which rose by 13%. Scope 3 emissions are indirect emissions, usually occurring off campus, and are mainly driven by human behavior. Chapman will need to be creative to modify user behaviors to mitigate and eventually offset these emissions

Scope 2 emissions, which are associated with the production of electricity and actual KWH consumed on campus, make up 33% of Chapman's emission profile. In recent years Chapman has prioritized energy efficiency upgrades, such as retrofitting and converting indoor lighting systems to LEDS. These energy efficiency projects have minimized the impact of campus expansion. However, even with highly efficient space Chapman will see scope 2 emissions continue to rise as new construction continues. Adding in solar or other renewable sources of electricity can offset new building consumption.

Scope 1 sources are where Chapman has the most operational control since these sources of emissions are occurring directly on campus. HVAC efficiency upgrades and operational changes have resulted In a decrease of Scope 1 emissions by 18%



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Chapman Outperforms Peers when Normalizing by Space

Normalizing emissions allows us to make an apples to apples comparison. When normalizing emissions there are two preferred methodologies to use: emissions per total users, or per 1,000 EUI Adjusted floor area. When normalized by space, Chapman's emissions are well below the peer average.

Of particular importance has been the minimal effect, or lack thereof, of Chapman's increasing campus footprint. Campus space grew by 45% since FY14/15, while total emissions only increased by 7%. This fact once again highlights the successful implementation of energy efficiency projects as well as that Chapman's buildings are not energy intensive operations.



Peers Diversify Electricity Sources Compared to Chapman



Since the baseline year of assessment Chapman has decreased their total electric consumption. Whereas peers have seen their electric consumption increase by 16%. However, that increase has mostly been attributed to renewable energy. As Chapman continues to grow it will reach a point where maximum building efficiency has been reached. Therefore it is imperative to begin investing in renewable methods of electricity to decrease future emissions.

Scope 3 Emissions Driven by Commuting, Travel

Scope 3 emissions have risen by 13% since the baseline year of analysis. This trend correlates with the increase of campus users, which has increased by 21%. Since Scope 3 emissions are the result of human behavior the most effective way to neutralize them is through the purchases of carbon offsets. On the other hand there are certain strategies Chapman can implement to minimize their need for offset purchases before incurring an increased cost:

- Incentivize carpooling and public transit by; increasing parking pass fees, offering to pay for a portion of public transit passes, and utilizing student carpool scheduling
- Implement a revolving green fund where departments pay to offset their directly financed travel
- Implement a tiered offset program for study abroad travel
- Centralize paper purchasing and purchase 100% recycled paper





Emissions Impact with Space and Enrollment Increases

Leading up to this reporting year, Chapman University had significantly increased campus GSF, but has only seen a comparatively minimal impact on their total greenhouse gas emissions. Surprisingly, Scope 1 emissions decreased during this time of expansion. If Chapman continues to increase its campus GSF Gordian recommends continuing to prioritize HVAC, electrical, and envelope efficiency projects. Furthermore, any new construction or major renovations on campus should be built to at least LEED silver standards to minimize the emission impact of expanding space.

During this time total FTE's increased by 21% and Scope 3 emissions increased by 13%. To limit this growing proportion of emissions, Gordian recommends implementing the previously described strategies of incentivizing carbon neutral commuting methods, having departments limit directly financed travel, and begin a student paid tiered offset program for studying abroad.

Since 2014:



Total Building GSF Increased +45%



Campus FTEs Increased +21%

Total Emissions Increased 7%

Progress Towards Emissions Reduction Goal



As of FY19 Chapman does not have a comprehensive climate plan, with no date set for carbon neutrality. The first step in creating a comprehensive climate plan is setting a neutrality date. Following this it is paramount to establish a series of emission reduction goals, which are attainable and actionable. Gordian recommends Scope 1 neutrality by 2025, as it is currently only 11% of total emissions. The next goal, based upon the ability install solar and purchase renewable energy would be reaching Scope 2 neutrality by 2030. As Scope 3 emissions are the most challenging to manage Gordian has set full neutrality by 2040. This is an attainable timeframe to implement significant behavioral change and limit the need for offset purchases.

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